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Oklahoma Earthquakes FAQs

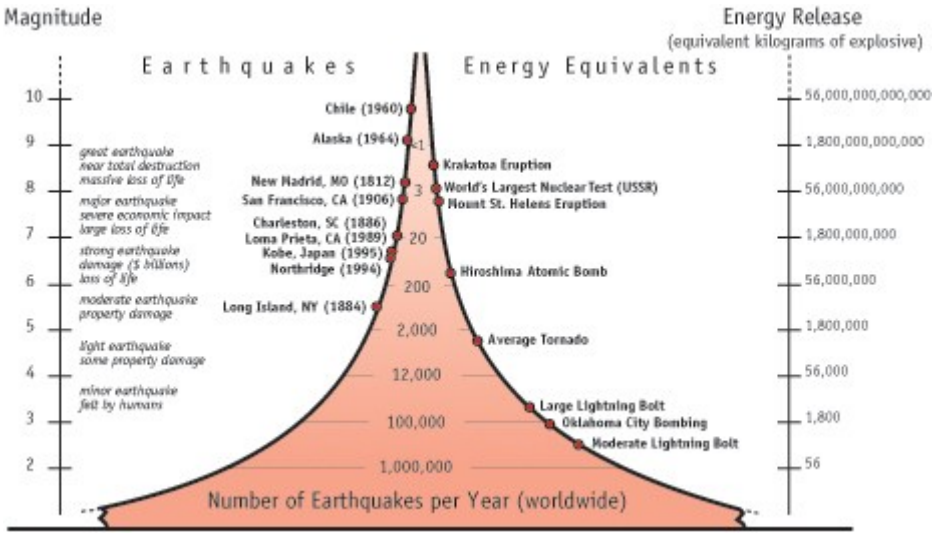
If you have a question of your own about earthquakes in Oklahoma please use this link to submit your question: Ask a Seismologist

For more FAQs about Oklahoma earthquakes, please visit: www.earthquakes.ok.gov/faqs/

- Why do so many Oklahoma earthquakes occur at a depth of 5km?
- Why does the USGS report fewer earthquakes than the OGS?
- Are safe rooms or storm shelters really safe for earthquakes?
- Can we tell the difference between naturally occurring and induced earthquakes?
- Are all these earthquakes unusual?
- Is there any data about historical seismic activity in Oklahoma below that of a 3.0?
- Can individuals get a device that measures earth tremors on their property?
- Is it better to have a large quantity of smaller earthquakes like we have been having? Do frequent, smaller earthquakes act as some sort of pressure relief instead of the force building and building until we have the "big one"? It would seem that a series of small slippages would be better than one large one.

The increase of magnitude of 3.0 and greater earthquakes indicates a greater possibility of having a magnitude 4.0 or greater event in the future. This arises from the Gutenberg-Richter law which expresses the relationship between magnitude and frequency of earthquakes in a given region and time period. Simply stated, for every 10 magnitude 2.0 earthquakes we have we can expect a magnitude 3.0 earthquake. So, for every 100 magnitude 2.0 earthquakes we have we can expect 10 magnitude 3.0 earthquakes and one magnitude 4.0 earthquake. This relationship holds worldwide and does not vary significantly from region to region or over time.

Furthermore the energy released by a small event (M2.0) is nowhere near comparable to the energy released by a larger event (M5.0). Each whole number step in the magnitude scale corresponds to the release of about 31.6 times more energy than the amount associated with the preceding whole number value. For instance, a magnitude 2.0 earthquake releases 31.6 times more energy than a magnitude 1.0 earthquake, while a magnitude 3.0 earthquake releases about 1000 times (31.6x31.6) more energy than a magnitude 1.0 and a magnitude 5.0 earthquake releases 1,000,000 times (31.6x31.6x31.6x31.6) more energy than a magnitude 1.0.



Earthquake Magnitude and Energy Release

Why does the USGS and OGS differ on magnitudes of earthquakes here in Oklahoma?

Why do only a few of the Oklahoma earthquakes show up on the USGS site?

I felt an earthquake last night but can't find any report. Do you all report small events?

How frequently does the OGS earthquake list get updated? It seems at times that there is a several hour delay.

Why do Oklahoma earthquakes sound like explosions, thunder, etc.?

What is an earthquake swarm?

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